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The past and present scenario of sea turtles in India: An overview of possibility for recurrence of history

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ABSTRACT
India has five species of sea turtles distributed along its coastline. Olive ridley is abundant and unique for mass nesting along the Orissa coast. The near absence of once abundant turtles in the Gulf of Mannar might be due to their migration to other areas or have been reduced to a minority population due to over exploitation. Turtles in Andaman and Nicobar are also under stress due to developmental activities. The turtles migrating to Indian waters are on the decline owing to many factors including incidental catch, human exploitation, beach development, predation by wild animals and beach erosion with incidental catch playing a prime role. Also, the destructive mode of fishing in some pockets lead to habitat damage. All the five species have been protected under Schedule I of the Indian Wildlife (Protection) Act 1972. But, the involvement of stakeholders and the need to provide the fisher folk an alternate livelihood option to ease the fishing pressure are considered vital to effectively protect these resources. The recent turtle nesting in Gulf of Mannar has given hope that the conservation efforts are yielding results but, still a long way to go for the return of history of turtle abundance.

Keywords: sea turtles, India, conservation, nesting, threats

INTRODUCTION

India has a coastline of about 7,500 kms with rich and diverse fauna and flora. Five species of sea turtles [olive ridley (*Lepidochelys olivacea*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), loggerhead (*Caretta caretta*) and leatherback (*Dermochelys coriacea*)] occur along the Indian coast and except loggerhead, all other four species are reported for nesting. Olive ridleys are unique and abundant, especially along the coast of the Orissa state and is well known for annual mass nesting or 'arribadas' along the beaches of Gahirmatha, Devi river mouth and Rushikulya.

SEA TURTLES ALONG INDIAN COAST

Sea turtles are widely distributed all along the Indian coast line (Fig.1). Tamil Nadu along the east coast of India has the uniqueness of having all the five species. Four species occur along Andhra Pradesh coast and Tamil Nadu and Andhra Pradesh coasts are considered as the migratory pathways of olive ridleys for approaching mass nesting beaches in Orissa (Tripathy and Choudhury, 2001). Four species of sea turtles (olive ridley, hawksbill, green and leatherback) have been reported along the Orissa coast with olive ridley being the most abundant. Orissa coast has the largest rookery in the world, located in Gahirmatha. West Bengal State has three species of turtles (olive ridley, hawksbill and green). Along the west coast of India, in Gujarat coast, except loggerhead, all other four species have been reported. In Maharashtra and Goa coasts, olive ridley is the common species. Four species of sea turtles, (leatherback, hawksbill, green and olive ridley) occur along the Andaman and Nicobar archipelago. Nesting by Green, Olive ridley and Hawksbill turtles have been reported in the Lakshadweep Islands.

The fact that live-turtle trade existed along the Tamil Nadu coast in 1960s with Sri Lanka speaks volume about the abundance of turtles. It was estimated that about 3000 to 4000 turtles landed annually between Rameswaram and Mimisal. The coastal people along Tuticorin coast consume turtle meat and death or injury due to turtle meat poisoning has also been reported along this coast (Silas and Bastian Fernando, 1984). Along the northern coast of Tamil Nadu, i.e. in Nagapattinam area, the fishermen don't have the habit of consuming turtle meat and kill the turtles entangled in the net. However, egg poaching is common along this coast.

THREATS TO SEA TURTLES

The turtles migrating to Indian waters have declined owing to many factors. The main detrimental factor is the incidental catch. Exploitation by humans, developmental activities on the beach including artificial illumination, predation by wild animals and beach erosion are the other factors affecting the sea turtles. The incidental catch is more along Tamil Nadu next to Gahirmatha

coast in Orissa and the gill nets account for the major killings (Rajagopalan et al., 2002).

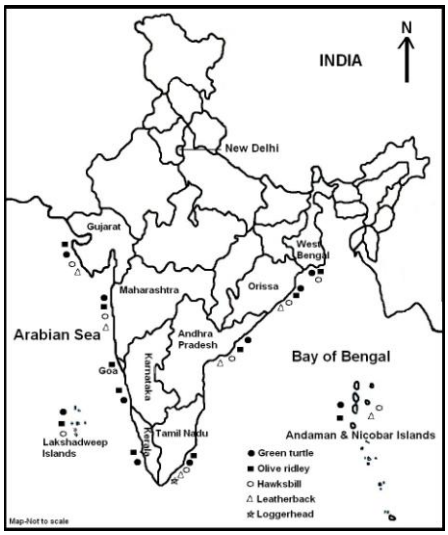

Fig.1 Map showing distribution of sea turtles along the coast of India

The threats to sea turtles also include poaching by feral dogs, sand mining, habitat degradation and tourism. Turtles have formed an important food source for the original inhabitants of Andaman and Nicobar Islands. Original inhabitants of the islands carried out subsistence hunting at offshore or by capturing nesting turtles on beaches. They also collect turtle eggs, which formed a valuable protein source. In the Andaman Islands, all the species except the leatherback were hunted for meat. The green and hawksbill turtles are the species usually eaten. The original inhabitants of the Islands are exempted from the Indian Wildlife (Protection) Act, 1972.

Increased fishing activity along the nesting beaches, incidental catch, beach developmental activities etc. have had detrimental effects on sea turtles resulting in declining trend of sea turtles migrating to Indian waters. The incidental catch due to trawl and gill netting, habitat degradation due to casurina plantation and artificial illumination at Rushikulya and Gahirmatha coasts are the detrimental factors (Kar, 2001). The conservation groups claimed that at least 12,000 turtles were killed from November 2007 to March 2008 along Orissa coast and the state government put the figure at 5,000. The average mortality figure of 2,470 has been recorded in the area in the last seven years. Greenpeace has reported over 4,000 carcasses in Devi region alone during the end of 2007 till February 2008 (The Economic Times, 20 Mar 2008).

CONSERVATION MEASURES

All the five species of sea turtles are listed under Schedule I of the Indian Wildlife (Protection) Act 1972. The Wildlife (Protection) Act, 1972 has been amended and made more stringent. The punishments in cases of offences have been enhanced. The Act also provides for forfeiture of any equipment, vehicle or weapon that is used for committing wildlife offences. Wide publicity is given on provisions of the Wildlife (Protection) Act, 1972 against poaching. India is a signatory to the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). Also, due to increased activity of conservation groups and the effective implementation of conservation measures with participation of local people, the sea turtles along the Indian coast have become a little more secure. But, due to huge human population, vast area and comparatively less manpower have made implementation a great struggle. So, the efforts of non-governmental agencies assume greater significance. In spite of all efforts, the stranding of 18 turtles (belonging to green, hawksbill and olive ridley) along Gulf of Mannar in August 2007 is an indication of the sufferings they have to undergo due to increased fishing pressure. After many decades, a non-governmental organization People's Action for Development (PAD) has reported an incidence of nesting by olive ridely in February 2008 in Keezhavaippar village along Gulf of Mannar coast (Fig.2). The juveniles were released back into the sea during April 2008. This could be attributed to the initiation and efforts of Gulf of Mannar Biosphere Reserve Trust authorities and that of the Wildlife Warden's office. However, lack of manpower and equipment still makes the task difficult for these conservation officials.

PRESENT SCENARIO AND POSSIBLE RECURRENCE OF HISTORY

In spite of continued threats in one form or other and the decline in number, the olive ridleys still visit the Orissa coast every year in appreciable numbers. However, the Gulf of Mannar region along the southeast coast of India, unique for sea turtles in 1960s, hasn't shown any improvement despite good efforts by the biosphere reserve authorities. After the 2004 Indian Ocean tsunami, occasional stranding and stray nesting have been reported. Murugan (2006) has reported the possible coast line changes after the tsunami along the Tamil Nadu coast and mentioned sporadic turtle nesting along this stretch after the tsunami. So, the subsequent stranding incident could be linked to disorientation of turtles due to topographic changes and can't be construed as recurrence.

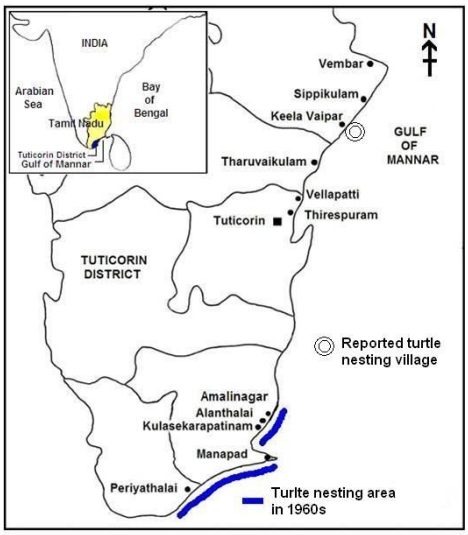

Fig.2 Map showing the Keela Vaipar village in Gulf of Mannar wherein turtle nesting has been reported

Because, the threats have not subsided fully and illegal turtle meat trade is still going on along this location. This is supported by the fact of observation of stranded turtles with injuries in February 2009 near Thirespuram. Also, carcasses could even be cited in and around this place, indicating illegal meat trade. Along the Goa coast, only two nestings have been reported in 2008 season, one each in Morjim and Galgibaga when compared to previous years and, drastic climate changes all over or disturbance on beaches frequented by them have been attributed as the reason behind the lower nesting incidence by forest officials (The Times of India, 21 Dec, 2008). The comprehensive study on turtle foraging grounds and migrating pathways is still very much lacking in India. The once abundant turtles of Gulf of Mannar could have migrated to new locations due to continuous disturbance and habitat destruction. However, they shall be moving around in the nearby vicinity and there exists a possibility for their return as and when the situation turns conducive for them. So, a lot has to be done yet to bring back the foregone era of abundant sea turtles.

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The Economic Times dated 20th March 2008

The Times of India dated 21st December 2008